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FACSIMILE TRANSMISSION

To: U. S. Patent and Trademark Office Attention: Corrected Filing Receipt

Date: August 21, 2001

Fax # 703-308-7751 Pages 3

From: SCULLY, SCOTT, MURPHY & PRESSER

Re: Martin Frederick Pera
U.S. Patent Appln. No.: 09/885,679
IMPROVED METHODS OF CULTURING
EMBRYONIC STEM CELLS AND
CONTROLLED DIFFERENTIATION
Our Docket: 14727

COMMENTS:

The Filing Receipt for the above-identified Patent Application has two words in the title incorrect, the first word is (methods and the other is differentiation). The title should read: **Title: Methods of culturing embryonic stem cells and controlled differentiation.**

Please send to us a corrected Filing Receipt with the title to read: **Title: Methods of culturing embryonic stem cells and controlled differentiation.**

Thank you.

If there are any problems concerning this facsimile, please call (516) 742-4343 and ask for Nalini at ext. 595.

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APPLICATION NUMBER	FILING DATE	GRP ART UNIT	FIL FEE REC'D	ATTY.DOCKET.NO	DRAWINGS	TOT CLAIMS	IND CLAIMS
09/885,679	06/20/2001	1636	1976	14727	19.	44	6

CONFIRMATION NO. 6362

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Receipt is acknowledged of this nonprovisional Patent Application. It will be considered in its order and you will be notified as to the results of the examination. Be sure to provide the U.S. APPLICATION NUMBER, FILING DATE, NAME OF APPLICANT, and TITLE OF INVENTION when inquiring about this application. Fees transmitted by check or draft are subject to collection. Please verify the accuracy of the data presented on this receipt. **If an error is noted on this Filing Receipt, please write to the Office of Initial Patent Examination's Customer Service Center. Please provide a copy of this Filing Receipt with the changes noted thereon. If you received a "Notice to File Missing Parts" for this application, please submit any corrections to this Filing Receipt with your reply to the Notice. When the USPTO processes the reply to the Notice, the USPTO will generate another Filing Receipt incorporating the requested corrections (if appropriate).**

Applicant(s)

Martin Frederick Pera, Residence Not Provided;

Domestic Priority data as claimed by applicant

Foreign Applications

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AUSTRALIA PR1327 11/08/2000

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Non-Publication Request: No

Early Publication Request: No

Title S/B

~~Method of culturing embryonic stem cells and controlled differntiation~~

Methods of culturing Embryonic Stem Cells and controlled Differentiation

Preliminary Class

435

IMPROVED METHODS OF CULTURING EMBRYONIC STEM CELLS AND CONTROLLED DIFFERENTIATION

FIELD OF THE INVENTION

The present invention relates to a method of culturing embryonic stem (ES) cells particularly to improve stem cell maintenance and persistence in culture. The method also provides a culture of ES cells prepared by the method as well as differentiated cells derived from the embryonic cells resulting from directed differentiation procedures provided by the present invention.

BACKGROUND OF THE INVENTION

The production of human ES cells which can be either maintained in an undifferentiated state or directed to undergo differentiation into extraembryonic or somatic lineages *in vitro* allows for the study of the cellular and molecular biology of early human development, functional genomics, generation of differentiated cells from the stem cells for use in transplantation or drug screening and drug discovery *in vitro*.

In general, stem cells are undifferentiated cells which can give rise to a succession of mature functional cells. For example, a haematopoietic stem cell may give rise to any of the different types of terminally differentiated blood cells. ES cells are derived from the embryo and are pluripotent, thus possessing the capability of developing into any cell.

Much attention recently has been devoted to the potential applications of stem cells in biology and medicine. The properties of pluripotentiality and immortality are unique to ES cells and enable investigators to approach many issues in human biology and medicine for the first time. ES cells potentially can address the shortage of donor tissue for use in transplantation procedures, particularly where no alternative culture system can support growth of the required committed stem cell. However, it must be noted that almost all of the wide ranging